

## Message Text

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PAGE 01 MEXICO 12600 01 OF 02 291758Z

ACTION ARA-14

INFO OCT-01 ISO-00 XMB-02 ERDA-05 AID-05 CEA-01  
CIAE-00 COME-00 DODE-00 EB-08 FEAE-00 FPC-01 H-01  
INR-07 INT-05 L-03 NSAE-00 NSC-05 OMB-01 PM-05  
USIA-06 OES-07 SP-02 SS-15 STR-04 TRSE-00 ACDA-07  
/105 W

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R 291742Z JUL 77

FM AMEMBASSY MEXICO

TO SECSTATE WASHDC 3867

AMCONSUL MONTERREY

LIMITED OFFICIAL USE SECTION 01 OF 02 MEXICO 12600

DEPT PASS EX-IM FOR CRAFTON, BROISE, FEA FOR THOMPSON

E.O. 11652: N/A

TAGS: ENRG, EALR, EFIN, BENC, BEXP, MX

SUBJECT: PEMEX PLANS FOR GAS PIPELINE TO US

1. SUMMARY. PEMEX HAS RELEASED VERY EXTENSIVE DOCUMENTARY INFORMATION ON ITS OIL & GAS RESERVES TO EX-IM BANK ENGINEERS. PRODUCTION PLANS & PIPELINE CONSTRUCTION & DESIGN WERE DISCUSSED. EX-IM WILL RECEIVE A COPY OF THE DEGOLYER & MACNAUGHTON REPORT IN EARLY AUGUST.

2. DURING WEEK OF JULY 18, PEMEX ENGINEERS BRIEFED EX-IM ENGINEERS JOHN BROISE & CHARLES BECKER, LOAN OFFICER DONAL SHEPHARD AND PETOFF ON PLANS TO DEVELOP RESERVES OF OIL & GAS THAT WILL FEED ITS NEW PIPELINE. EX-IM GROUP MET WITH HEADS OF EXPLORATION, EXPLOITATION, RESERVOIR ENGINEERING, & PETROCHEMICAL DIVISIONS. THEY ALSO RECEIVED CONSIDERABLE DOCUMENTATION ON ONSHORE & OFFSHORE STRUCTURES ALREADY IDENTIFIED BY GEOPHYSICAL MEANS, RATES OF PRODUCTION OF OIL & GAS IN EACH WELL IN DEVELOPED FIELDS, INCLUDING BOTTOM HOLE PRESSURE & OTHER RELEVANT DATA, PLANS

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PAGE 02 MEXICO 12600 01 OF 02 291758Z

FOR CONSTRUCTION OF GAS GATHERING & TREATMENT FACILITIES, DRILLING GOALS FOR EXPLORATION & DEVELOPMENT OF NEW FIELDS, & A DETAILED BRIEFING ON THE CONSTRUCTION PLANS FOR THE PIPELINE.

3. EXPLORATION DIRECTOR OCTAVIO MEJIA DAUTT DISCUSSED PEMEX'S EXPLORATION PLANS WITH EX-IM GROUP. PEMEX CURRENTLY HAS 7 FIELDS IN PRODUCTION & ONE EXPLORATORY WELL IN

12 OTHERS. CUNDUACAN, SAMARIA, & IRIDE, NOW CALLED THE ANTONIO J.BERMUDEZ FIELD ARE PART OF THE SAME STRUCTURE AS ARE CACTUS, NISPERO & RIO NUEVO, IN BOTH CASES THE THREE FIELDS ARE SEPARATED BY FAULTING BUT BECAUSE OF THE THICKNESS OF THE PAY ZONES & THE HIGH DEGREE OF FRACTURING, THERE IS GOOD COMMUNICATION BETWEEN RESEVOIRS. SEISMIC STUDIES INDICATE THAT SITIO GRANDE MAY ALSO BE CONNECTED TO THE CACTUS GROUP.

A NEW EXPLORATORY WELL IN THE TEPATE STRUCTURE WAS COMPLETED JULY 18 & FOUND WHAT IS PROBABLY COMMERCIAL PRODUCTION. APPROXIMATELY 70 STRUCTURES REMAIN TO BE EXPLORED.

4. 60 STRUCTURES HAVE BEEN IDENTIFIED IN THE GULF OF CAMPECHE. DETAILED SEISMIC WORK WILL BE COMPLETED NEXT MONTH BY A US CONTRACTOR. ONE JACK UP RIG IS EXPECTED TO BEGIN DRILLING DURING WEEK OF JULY 25 & 3 OTHER JACK UPS & 1 SEMI-SUBMERSIBLE BY THE END OF THE YEAR. 24 WELLS WILL BE DRILLED IN THE NEXT TWO YEARS BEGINNING WITH BACAB & CHAC 2. A 6TH RIG LEASED BY PROTEXA WILL BEGIN DRILLING OFF BAJA CALIFORNIA LATE IN THE YEAR.

5. NEW GAS FINDS NEAR LAREDO WITH RESERVES OF UP TO 1 TRILLION CF HAVE BEEN MADE AT VELERO-1, TOTONACA-3, ANAHUAC-101, LAMPAZOS-1, MONCLOVA-1, ULUA-1. THE LAST THREE ARE ALONG THE NORTHEAST EDGE OF THE SABINAS BASIN, AN AREA OF MORE THAN 40,000 SQ.KM. IN COAHUILA & NUEVO LEON. GAS FOUND SO FAR HAS GENERALLY BEEN DRY & SWEET. THE ANAHUAC FIELD HAS A 40 NITROGEN CONTENT & WILL REQUIRE A CRYOGENIC LIMITED OFFICIAL USE

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PAGE 03 MEXICO 12600 01 OF 02 291758Z

PLANT TO PROCESS THE GAS.

6. PEMEX RESERVOIR ENGINEERS DISCUSSED TECHNIQUES USED TO EVALUATE RESERVES. CORES ARE ANALYZED BY PEMEX LABS IN VILLAHERMOSA, POZA RICA, & AT THE INSTITUTO MEXICANO DE PETROLEO IN MEXICO CITY, PEMEX ALSO HAS SEVERAL ENGINEERS WORKING WITH CORE LABORATORIES, INC., OF DALLAS, ON ANALYSIS OF CORES FROM THE SITIO GRANDE FIELD. CORES GENERALLY HAVE A VERY TIGHT MATRIX WITH PRIMARY POROSITY OF ABOUT 25 MILLIDARCIES BUT HIGH DEGREE OF FRACTURING GIVES SECONDARY POROSITY OF 1 DARCY OR MORE. AFTER CORING, PEMEX RUNS THE FOLLOWING TYPES OF LOGS: INDUCTION, DUAL LATERAL, SONIC, SIDEWALL NEUTRON POROSITY, COMPENSATED NEUTRON, DENSITY, & MICROLOGS. THIS DATA IS USED TO MAKE VOLUMETRIC DETERMINATION OF RESERVES BASED ON CORE ANALYSIS OIL COLUMN THICKNESS, SATURATION, & DRAINAGE ARE OF THE WELL. DEGOLYER & MACNAUGHTON'S ANALYSIS OF PEMEX'S DATA LED THEM TO CONCLUDE THAT MEXICO HAS SLIGHTLY OVER 8 BILLION B OF PROVEN CRUDE RESERVES IN THE REFORMA CRETACEOUS STRUCTURES ALONE. PEMEX'S ESTIMATES OF ITS PROVEN RESERVES AS OF JULY 1, 1977, WERE 8.2 BB OF CRUDE, 1.2 BB OF CONDENSATE, & 23 TRILLION CU.FT. OF GAS, YIELDING TOTAL RESERVES OF 14.1 BB. THESE ARE FURTHER BROKEN DOWN AS

DRILLED, 7.8 BB, UNDRILLED 2.2 BB, SECONDARY RECOVERY 4.1  
BB. DEGOLYER & MACNAUGHTON CALCULATE RECOVERY FACTOR AS  
47.7.

7. IF NO NEW DISCOVERIES ARE MADE, PEMEX BELIEVES IT HAS  
SUFFICIENT RESERVES FOR AT LEAST 20 YEARS AT PROJECTED  
EXPORT AND CONSUMPTION RATES. THEY ARE PLANNING ON THE  
FOLLOWING RATES OF PRODUCTION:

|                                 |       |       |       |       |
|---------------------------------|-------|-------|-------|-------|
| CRUDE (MB/D)                    | 1.1   | 2.6   | 3.15  | 3.65  |
| NATURAL GAS (BCFD)              | 1.735 | 4.326 | 4.576 | 4.834 |
| DOMESTIC GAS CONSUMPTION (BCFD) | 1.550 | 2.142 | 2.550 | 2.900 |
| AVAILABLE FOR EXPORT (BCFD)     | ---   | 2.184 | 2.026 | 1.934 |

8. SWEETENERS NOS.5 & 6 AT CACTUS, CHIAPAS WILL BE COM-  
PLETED BY THE END OF SEPTEMBER. NOS.7 THROUGH 12 WILL BE

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PAGE 01 MEXICO 12600 02 OF 02 291826Z  
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INFO OCT-01 ISO-00 XMB-02 ERDA-05 AID-05 CEA-01  
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INR-07 INT-05 L-03 NSAE-00 NSC-05 OMB-01 PM-05  
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LIMITED OFFICIAL USE SECTION 02 OF 02 MEXICO 12600

FINISHED AT A RATE OF 2 PER MONTH IN FEBRUARY, MARCH, &  
APRIL, 1978. TOTAL CAPACITY AT CACTUS WILL BE 2.3 BCFD.  
CONTRACTOR WILL BE CHOSEN IN LATE AUGUST FOR 3 MORE 400  
MCFD SWEETENERS TO BE BUILT NEAR THE CUNDUACAN FIELD.  
9. PEMEX CURRENTLY HAS 800 MCFD OF ABSORPTION PLANTS & 600  
MCFD OF CRYOGENIC PLANTS AT CIUDAD PEMEX, LA VENTA, &  
PAJARITOS. TWO 150 MCFD CRYOGENICS WILL BE COMPLETED AT  
CACTUS IN APRIL, 1978. 4 MORE 500 MCFD CRYOGENICS DESIGNED  
BY THE INSTITUTO MEXICANO DE PETROLEO WILL BE BUILT, TWO  
AT CACTUS TO BE FINISHED IN JUNE & SEPT, 1978, AND TWO  
NEAR CUNDUACAN IN JUNE, 1979. TOTAL SWEETENING CAPACITY  
SHOULD REACH 3.7 BCFD BY 1979.  
10. DEPENDING ON THE AMOUNT OF ETHANE CONTENT, PEMEX  
EXPECTS TO PRODUCE A PIPELINE QUALITY GAS WITH A BTU PER

CU.FT. RANGE OF EITHER 960-970 OR 1025-1030. WHILE SOME OF GAS LIQUIDS WILL BE USED IN PETROCHEMICAL PLANTS & TO MEET DOMESTIC DEMAND, SUBSTANTIAL QUANTITIES OF PROPANE, BUTANE, ETHANE, & NAPTHAS AVAILABLE FOR EXPORT. 11. THE MAIN SOURCE OF THE GAS WILL BE ASSOCIATED GAS FROM THE REFORMA AREA BUT ADDITIONAL FIELDS ARE AVAILABLE. 700 MCFD ARE SHUT IN IN THE CIUDAD PEMEX DISTRICT AND SOME GAS LIMITED OFFICIAL USE

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PAGE 02 MEXICO 12600 02 OF 02 291826Z

IS CURRENTLY BEING FLARED AT POZA RICA. PRODUCTION COULD ALSO COME FROM FIELDS AT SEVERAL LOCATIONS IN THE STATE OF VERACRUZ AND IN TAMAULIPAS.

12. PEMEX ALREADY OWNS ITS RIGHT OF WAY ALONG 440 KM OF THE PROPOSED ROUTE AND WILL HAVE TO ACQUIRE AN ADDITIONAL 910 KM. THE PIPE USED WILL BE API GRADE X-65. THE LINE WILL HAVE 17 COMPRESSOR STATIONS USING TWO 11,170 HP COMPRESSORS & DIRECT DRIVE TURBINES THAT WILL MAINTAIN PRESSURE AT 1200 PSI. THE STATIONS WILL BE SPACED 77 KM APART EXCEPT FOR THE LAST ONE WHICH WILL BE 143 KM FROM THE BORDER & WHICH WILL BE THE ONLY STATION EQUIPPED WITH A THIRD STANDBY, COMPRESSOR. US CONNECTING PIPELINES CANNOT TAKE GAS AT THE PRESSURE PEMEX INTENDS TO USE.

13. PEMEX PLANS TO BUY AS MUCH OF THE EQUIPMENT NEEDED FROM MEXICAN SUPPLIERS. IT THINKS IT CAN PROCURE ABOUT 270 KM OF PIPE FROM TUBACERO AND ABOUT 25 PERCENT OF THE COMPRESSION EQUIPMENT AND VALVES LOCALLY. ABOUT \$600 MILLION IN IMPORTS WILL BE NEEDED AND PEMEX EXPECTS \$400-\$450 WILL COME FROM THE U.S.

14. PEMEX SAID TRANSPORTATION COSTS FOR THE GAS WOULD BE 30-40 CENTS PER 1000 CU/FT AND THE GAS WOULD SELL FOR \$2.65/1000. THIS WOULD GENERATE REVENUES OF \$6.5 BILLION BETWEEN 1979 AND 1982 AND \$23 BILLION IN THE PERIOD 1983-88. AVERAGE DELIVERIES 1979-82 WOULD BE 1.5 BCFD. WHILE NO CONTRACTS HAVE BEEN SIGNED, PEMEX HAS DISCUSSED SALES TO TENNECO, TEXAS EASTERN, SOUTHERN, FLORIDA, EL PASO, & COASTAL STATES.

15. IN ADDITION TO THE VOLUMINOUS PUBLICATIONS & MAPS RELEASED TO BROIS, PEMEX SAID IT WOULD TELL DEGOLYER & MACNAUGHTON TO SEND HIM A COPY OF THEIR REPORT WHEN IT IS COMPLETED IN EARLY AUGUST. LUCEY.

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## Message Attributes

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**Disposition Approved on Date:**  
**Disposition Case Number:** n/a  
**Disposition Comment:** 25 YEAR REVIEW  
**Disposition Date:** 22 May 2009  
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**Subject:** PEMEX PLANS FOR GAS PIPELINE TO US  
**TAGS:** ENRG, EALR, EFIN, BENC, BEXP, MX, PEMEX, XMB  
**To:** STATE MONTERREY  
**Type:** TE  
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